

**UNCLASSIFIED**

**AD \_ 401 276 \_**

**DEFENSE DOCUMENTATION CENTER**

**FOR**

**SCIENTIFIC AND TECHNICAL INFORMATION**

**CAMERON STATION, ALEXANDRIA, VIRGINIA**



**UNCLASSIFIED**

**NOTICE:** When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

401 276

S/188/62/000/006/004/016  
B187/B102

STEP

AUTHOR: ⑧ Strigachev, A. T.

TITLE: ⑥ Comparison of the nuclear energy levels of  $Gd^{152}$  with the theory of non-axial nuclei

PERIODICAL: ⑮ TRANS. FROM Moscow. Universitet. Vestnik. Seriya III. Fizika, astronomiya, no. 6, 1962, 20-23

TEXT: The conclusions drawn from Davydov's theory of the non-axial nuclei (Izv. AN SSSR, ser. fizicheskaya, 25, no. 7, 782, 1961; Nucl. Phys., 20, 499, 1960) are compared with the experimental results on the first excited levels of  $Gd^{152}$ . Results:  $\mu = 0.36$  and  $0.25$ ,  $\gamma = 12^\circ$  and  $10.5^\circ$  for  $Gd^{154}$  and  $Gd^{156}$  respectively. The values of  $E_1(6^+)/E_1(2^+)$  and  $E_2(4^+)/E_1(2^+)$  resulting therefrom are in good agreement with the experimental data.

$\mu \approx 1.1$  and  $\gamma = 18^\circ$  was found for  $Gd^{152}$ , and hence the value  $E_1(4^+) = 757$  keV. More accurately, this value is 764 keV. Transition from the 756-keV level to the ground level is not direct.  $4^+$  is preferred out of the two

Card 1/2

Pd

Comparison of the nuclear energy...

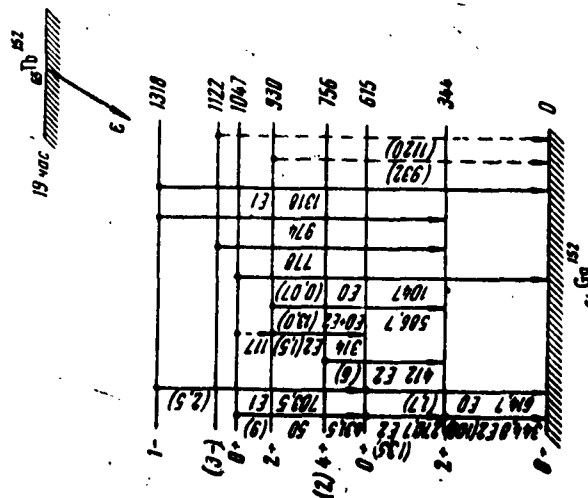
S/188/62/000/006/004/016  
B187/B102

possible characteristics  $2^+$  and  $4^+$ . The high value of  $\mu \approx 1.1$  indicates that the nucleus behaves "softly", i.e., a close relationship exists between the collective nucleon motions and the mononucleonic excitations. The change in  $\mu$  of the Gd isotopes with varying mass number is proportional to the change in  $\gamma$ . There are 4 figures.

ASSOCIATION: NIIYaF

SUBMITTED: March 13, 1962

Fig. 1



Card 2/2